Docket #: S19-351

Anti-biofouling Polymers for Hydrogel Coatings on Implantable Sensors

Stanford researchers have developed a library of polymeric hydrogel formulations to prevent and/or reduce biofouling on implanted sensors and medical devices. In vivo studies of the acrylamide-based polymer coatings have demonstrated resistance to protein adsorption, cell adhesion, and platelet adhesion, all indications of biofouling. Aside from its longevity and anti-fouling properties, these formulations also allow uninhibited electrochemical performance of an underlying sensor. As such, these new polymer hydrogel coatings outperform current PEG and zwitterionic coatings in both performance, versatility, and longevity.

Stage of Research

- in vivo

Applications

- **Polymeric hydrogel coatings for bodily fluid contacting medical devices: catheters, silicone implants, vascular grafts, pacemakers, surgical implants etc.**

Advantages

- **Biocompatible and increased stability over current PEG and zwitterionic coatings**
- Long-term anti-biofouling
- Coating preserves electrochemical function of underlying sensors

Publications

- Chan et al. bioRxiv (2020) "Combinatorial Polyacrylamide Hydrogels for Preventing Biofouling on Implantable Biosensors"

Patents

- Published Application: WO2021142391
- Published Application: 20230038845
- Issued: 12,692,408 (USA)

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